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10/3/2007

This listing of claims replaces all prior versions and listings of claims in the application:

1. (Original): A method of epitaxially growing a second crystal over a first crystal, the first crystal having a first lattice constant, the second crystal having a second lattice constant, the method comprising the steps of:

- a) cleansing a surface of the first crystal by thermal desorption;
- b) depositing a first layer of a first material over the surface of the first crystal;
- c) depositing a second layer of a second material over the first layer; and
- d) epitaxially growing the second crystal over the second layer;

wherein the first layer substantially accommodates strain accumulated between the first crystal and the second crystal during epitaxial growth, thereby substantially preventing strain relaxation and formation of dislocation defects.

2. (Original): The method of claim 1, wherein the step a) of cleansing the surface of the first crystal by thermal desorption includes the steps of:

- a1) bringing a temperature of the first crystal to T_s °C, T_s ranging from about 495°C to about 600°C;
- a2) introducing a vapor having a vapor pressure; and
- a3) annealing the first crystal under the vapor pressure at temperature T_s ;

wherein the vapor pressure is greater than a vapor pressure of the first crystal at temperature T_s .

3. (Original): The method of claim 2, wherein the vapor pressure ranges from about 0.004 pa to about 0.012 pa, and wherein surface oxides of the first crystal are desorbed.

4. (Original): The method of claim 3, wherein the first crystal comprises group-III/group-V species, and the vapor comprises group-V species.

5. (Original): The method of claim 4, wherein the first crystal comprises GaAs, GaP,